

CLAIMS

We claim:

1. A method of placing two, or more, effective filter/sieves or water blockage zones, at desired depths of penetration into a water producing oil and/or gas reservoir such that oil and/or gas production can be re-established, the method comprising:

- a. injecting a first carrier fluid containing a reactive partitioning chemical R_1 into the well;
- b. injecting a spacer fluid into the well;
- c. injecting a second carrier fluid containing a second reactive partitioning chemical R_2 into the well, wherein the second reactive partitioning chemical R_2 can be the same as the first injected partitioning reactive chemical R_1 or a different reactive partitioning chemical, which will have a different partitioning coefficient value to the partitioning coefficient value of R_1 ;

- d. injecting a second spacer fluid into the well;

and

- e. injecting a gel or polymer progenitor fluid into the well, wherein said reactive partitioning chemical is injected before or after said progenitor fluid .

2. The method of Claim 1 which further includes injecting a conditioning fluid prior to injecting said first fluid.

3. The method of Claim 1 wherein the partitioning reactive chemical(s) R_1 and R_2 are selected from the group of organic esters including methyl acetate, ethyl formate, ethyl acetate, methyl propanoate, ethyl propanoate, propyl formate, propyl acetate and propyl propanoate, and where R_1 and R_2 can be the same ester or a combination of different esters.

4. The method of Claim 1 wherein said reactive chemical in said first and second carrier fluid is a soluble polymer.

5. The method of Claim 1 wherein the wellbore tubular volume is filled with inert nitrogen gas, carbon dioxide gas, methane gas, condensate liquids, diesel liquids or crude oil liquids or mixtures thereof.

6. The method of Claim 1 wherein at least one, or more of the reactive chemical(s) or gel/polymer progenitor chemical(s) must have partition coefficient value(s) K_1 greater than zero, K_0 , with the other chemical(s) required for gel or polymer formation having partition coefficient(s) equal to zero, K_0 , or a partition coefficient value(s) greater than zero but less than K_1 .

7. The method of Claim 6 whereby partitioning reactive chemical(s) and partitioning, or non-partitioning, gel/polymer progenitor chemicals are sequentially injected into the well in the order determined by their respective partition coefficient

values.

8. A method of placing two, or more, effective filter/sieves or water blockage zones, at desired depths of penetration into a water producing oil and or gas reservoir such that oil and/or gas can be re-established, the method comprising:

- a. injecting a first carrier fluid containing a commingled mixture of reactive partitioning chemicals R_1 and R_2 into the well;
- b. injecting a spacer fluid into the well; and
- c. injecting a gel or polymer progenitor fluid into the well, wherein said reactive partitioning chemicals are injected before or after said progenitor fluid.